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 TITLE: Sustained-release pharmaceutical powders containing  
 soluble collagen (derivatives) as carriers  
 INVENTOR(S): Myata, Teruo; Kudome, Satoru  
 PATENT ASSIGNEE(S): Koken Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
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 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
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| -----       | ---- | -----    | -----           | -----    |
| JP 03093716 | A    | 19910418 | JP 1989-230421  | 19890907 |
| JP 2789115  | B2   | 19980820 |                 |          |
| JP 10182499 | A    | 19980707 | JP 1998-48559   | 19980216 |
| JP 3240593  | B2   | 20011217 |                 |          |

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AB Soluble collagen and/or soluble collagen derivative solns. or dispersions  
 containing  $\geq 1$  active ingredient(s) are spray-dried to manufacture the title  
 powders (average particle size 0.1-50  $\mu\text{m}$ ). The powders are useful for  
 ophthalmic treatment, etc. An aqueous solution (pH 9) containing 2.5 g bovine  
 atherocollagen was treated with 1 g succinic anhydride to give succinic acid-  
 modified collagen. An aqueous 1% the modified collagen solution (1 L) was  
 mixed with 500  $\mu\text{m}$  gentamycin (I) and the mixture was spray-dried at 60° to  
 manufacture powders (average particle size 2.5  $\mu\text{m}$ ), which were applied to eyes  
 of rabbits to show I controlled-release property. The concentration of I in  
 the tear was kept higher than with I injection even 6 h after.

IC ICM A61K009-16  
 ICS A61K047-42

CC 63-6 (Pharmaceuticals)

IT Collagens, biological studies

RL: BIOL (Biological study)  
 (water-soluble, pharmaceutical powders containing,  
 sustained-release)

IT Collagens, biological studies

RL: BIOL (Biological study)  
 (stelo-, pharmaceutical powders containing, sustained-release)

IT Pharmaceutical dosage forms

(powders, sustained-release, containing water-soluble  
 collagen (derivs.))